FY 2003 Performance Plan
Background and Introduction

The Government Performance and Results Act

The Government Performance and Results Act (GPRA) was passed by Congress and signed by the President in 1993. GPRA was enacted to improve the efficiency of all Federal agencies, with the following specific goals:

Improve Federal program management, effectiveness, and public accountability
Improve Congressional decision making on where to commit the Nation's financial and human resources
Improve citizen confidence in Government performance

GPRA directs Executive Branch agencies to develop a customer-focused strategic plan that aligns activities with concrete missions and goals. The Act directs agencies to manage and measure results to justify Congressional appropriations and authorizations. One hundred and eighty days after the completion of the fiscal year, agencies report on the degree of success in achieving the goals and performance measures defined in the strategic and performance plans. NASA's third Annual Performance Report will be furnished to the Congress in March 2002, covering performance in FY 2001.

NASA's Strategic Management System

Processes within NASA's Strategic Management System provide the information and results for GPRA's planning and reporting requirements. This system is defined in the NASA Strategic Management Handbook (NASA Procedures and Guidelines 1000.2, February 2000). Strategic Management Elements are depicted in the handbook (Figure 1-2) illustrating the hierarchy of documentation for the Strategic Management System (Agency--Enterprise--Centers--Program/Project--Employees).

The NASA Strategic Plan (NASA Policy Directive 1000.1b) defines the vision, mission, and fundamental questions of science and research that provide the foundation of the Agency's goals. The Plan describes five Strategic Enterprises that manage the programs and activities to implement our mission, answer fundamental questions, and provide service to identified customers. These Strategic Enterprises are the: *Space Science Enterprise, Earth Science Enterprise, Human Exploration and Development of Space Enterprise, Biological and Physical Research Enterprise and Aerospace Technology Enterprise*. The support systems for the Strategic Enterprises, defined as Crosscutting Processes, are: *Manage Strategically, Provide Aerospace Products and Capabilities, Communicate Knowledge and Generate Knowledge.* Interested readers may access NASA's Strategic Plan at the following website: http://www.hq.nasa.gov/office/codez/new/

The FY 2003 Performance Plan reflects the recent Strategic Plan. In the NASA Strategic Plan, the vision and mission statements of the Agency are articulated. We reprint them here for the convenience of the reader.

NASA Vision Statement

NASA is an investment in America's future. As explorers, pioneers, and innovators, we boldly expand frontiers in air and space to inspire and serve America and to benefit the quality of life on Earth.

NASA Mission Statement

- **To advance and communicate scientific knowledge and understanding of the Earth, the solar system, and the universe;**
- **To advance human exploration, use, and development of space;**
- **To research, develop, verify, and transfer advanced aeronautics, space, and space technologies.**

Outcomes of NASA's Activities

Government investment decisions on funding for space and aeronautics research and technology cannot be made knowing in advance the full benefits ("outcomes") that will accrue from making the investments. Nor can the exact timetable be known as to when these benefits will be realized. However, we can identify how the outcomes of NASA's activities contribute significantly to the achievement of America's goals in five key areas:

Economic growth and security – NASA conducts aeronautics and space research and develops technology in partnership with industry, academia, and other federal agencies to keep America capable and competitive.

Increased understanding of science and technology – NASA communicates widely the content, relevancy, and excitement of our mission and discoveries to inspire and increase the understanding and the broad application of science and technology.

Protection of the Earth's Environment – NASA studies the Earth as a planet and as a system to understand global climate change, enabling the world to address environmental issues.

Educational Excellence – NASA involves the educational community in our endeavors to inspire America's students, create learning opportunities, and enlighten inquisitive minds.

Peaceful Exploration and Discovery – NASA explores the Universe to enrich human life by stimulating intellectual curiosity, opening new worlds of opportunity, and uniting nations of the world in this quest.

Annual performance goals (APGs) supporting the first three outcomes can be found in all of the Enterprises and Crosscutting Processes. APGs supporting the preservation of the environment can be found in the Earth Science Enterprise.

NASA's Fiscal Year 2003 Budget

The NASA FY 2003 budget request to OMB supports the President's commitment to support NASA's space and aeronautics program. This budget supports NASA's near-term priorities to fly the Space Shuttle safely and build the International Space Station. NASA's longer-term investments in America's future—developing more affordable, reliable means of access to space and conducting cutting-edge scientific and technological research – are also supported.

The successful execution of NASA's strategic goals and objectives is contingent on receipt of the requested appropriations, as well as the provision of funds, materials, or services which have been committed to the cooperative agreements or partnerships that are referenced in this document. The parties to these agreements include: foreign governments, other Federal Agencies or Departments, and commercial entities.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
FISCAL YEAR 2003 ESTIMATES
(IN MILLIONS OF REAL YEAR DOLLARS)
FEDERAL RETIREES COST DISTRIBUTED BY ENTERPRISE

For Display Purposes Only

	FY 2001	FY 2002 EXCLUDES EMERGENCY RESPONSE FUNDS	FY 2002 INCLUDES EMERGENCY RESPONSE FUNDS	FY 2003
HUMAN SPACE FLIGHT	**7,198.5**	**6,797.1**	**6,873.1**	**6,172.9**
INTERNATIONAL SPACE STATION	2,127.8	1,721.7	1,721.7	1,492.1
SPACE SHUTTLE	3,118.8	3,272.8	3,272.8	3,208.0
PAYLOAD & ELV SUPPORT	90.0	91.3	91.3	87.5
HEDS INVESTMENTS AND SUPPORT	1,292.8	1,181.5	1,257.5	1,220.2
SPACE COMMUNICATIONS & DATA SYSTEMS	521.7	482.2	482.2	117.5
SAFETY, MISSION ASSURANCE & ENGINEERING	47.4	47.6	47.6	47.6
SCIENCE, AERONAUTICS & TECHNOLOGY	**7,134.5**	**8,082.3**	**8,114.8**	**8,918.5**
SPACE SCIENCE	2,617.6	2,872.7	2,880.1	3,428.3
BIOLOGICAL & PHYSICAL RESEARCH	365.2	823.5	828.0	851.3
EARTH SCIENCE	1,771.2	1,631.2	1,635.7	1,639.4
AEROSPACE TECHNOLOGY	2,247.8	2,527.6	2,543.7	2,855.6
ACADEMIC PROGRAMS	132.7	227.3	227.3	143.7
INSPECTOR GENERAL	**23.9**	**24.7**	**24.7**	**25.6**
SUBTOTAL AGENCY	**14,357.2**	**14,904.2**	**15,012.7**	**15,117.0**
EMERGENCY RESPONSE FUND		**108.5**		
TOTAL AGENCY		**15,012.7**		

*FY 2001 restructured to reflect new FY 2002 Two Appropriation Structure

Fiscal Year 2003 Estimates
(In millions of Dollars)

	FY 1999	FY 2000	*FY 2001	FY 2002[1]	FY2003
NASA Total Including Federal Retirees Cost			[14,357]	[15,013]	15,117
NASA Total Excluding Federal Retirees Cost	13,653	13,602	14,253	14,902	15,000
SPACE SCIENCE	2,119	2,194	2,321	2,867	3,414
EARTH SCIENCE	1,414	1,443	1,485	1,626	1,628
HUMAN EXPLORATION AND DEVELOPMENT OF SPACE**	6,345	6,302	5,973	6,830	6,131
AEROSPACE TECHNOLOGY	1,339	1,125	1,404	2,508	2,816
BIOLOGICAL & PHYSICAL RESEARCH***			313	820	842
R&PM/CoF/OIG/ACADEMIC PROGRAMS	2,436	2,538			
OIG/ACADEMIC PROGRAMS				251	169
FEDERAL RETIREES COST			[104]	[111]	117
CIVIL SERVICE FTEs**	18,469	18,375	18,711	19,005	19,050

*Reflects 9/28/01 Operating Plan

** Includes Human Space Flight, Biological & Physical Research, Mission Communications and Space Communications Services, Space Operations, and Safety, Mission Assurance & Engineering.
***Beginning in FY 2001, Biological & Physical Research is a separate Enterprise.
**** FTE's reflect total Agency including Office of Inspector General (OIG).
[1]Includes $108M for Emergency Response Fund

The mission support line in the preceding table (FY 1999 – 2001) provides funding for mission support and includes: safety, mission assurance, engineering and advanced concepts activities supporting agency programs; salaries and related expenses in support of research in NASA field installations; design, repair, rehabilitation and modification of institutional facilities and construction of new institutional facilities; and other operations activities supporting conduct of agency programs such as the OIG and Academic Programs.

NASA is making progress towards full cost management. Beginning in FY 2002, NASA is implementing a two-appropriation budget (excluding the Inspector General account). The two-appropriation budget includes Human Space Flight (HSF) and Science, Aeronautics and Technology (SAT). The budget for Mission Support and other select elements have been allocated against the Enterprises contained in the two-appropriation budget that began in FY 2002.

For informational purposes, the Enterprise sections of this plan will display: 1) Enterprise FY funding levels for FY 1999-2003 and, 2) Civil Service staffing levels assigned to each Enterprise.

Additional detail on the means and strategies for accomplishing these performance targets is included in the budget narrative sections of this document. The NASA FY 2003 Budget will be available through the NASA homepage at the following internet address: http://ifmp.nasa.gov/codeb/budget2003/

NASA's Performance Plan

The performance plan describes performance measures for program activities requested in the FY 2003 budget. FY 2003 Performance goals and objectives are defined for NASA's Strategic Enterprises and for Crosscutting Processes in the NASA Strategic Plan (NPD 1000.1b).

The FY 2003 Plan provides information on how NASA plans to verify and validate performance data. Enterprises/Crosscutting Processes also include a description of the individual means that they will use to verify and validate measured values in performance reporting. These added features are provided to communicate various approaches used in the verification and validation of performance data and to support the credibility of reported performance.

Strategic goals and objectives are provided along with annual performance goals and indicators in the introductory section for each Enterprise and Crosscutting Process. The annual performance goals and indicators used in performance tracking are integrated with the strategic goals and objectives to provide a better linkage between the Strategic Plan and the Performance Plan. This format provides greater performance context and eliminates the necessity for a separate performance table to demonstrate the linkage between the Strategic Plan and the Annual Performance Plan that was a duplicative effort.

Generate Knowledge, a crosscutting process, is central to NASA's mission and is the primary means through which we seek the answers to our fundamental questions. Based on a NASA Advisory Council recommendation, Generate Knowledge was not included in the FY 2002 Performance Plan. The NAC's recommendation was based on the potential duplication of science research metrics across the Enterprises. As a result, NASA has been exploring alternative ways to effectively communicate this performance. Beginning with FY 03, an alternative method for reporting Generate Knowledge, in lieu of using performance metrics, will be provided in the Agency Performance Report. Based on the input provided by the Committee on Science, Engineering, and Public Policy (COSEPUP) report titled *Implementing the Government Performance and Results Act for Research* (2000), NASA will take a new approach to reporting the knowledge generated by the Agency's funded research. The NASA Research Results report will be an annual compilation of research highlights and most important discoveries made possible by the Generate Knowledge process via NASA funding. This report will augment the enterprise metrics that are detailed in the Agency Performance Plan. This report will not measure performance, but will describe research products resulting from NASA investments.

In accordance with OMB Circular A-ll requirements, annual performance goals for FY 1999-2003 are displayed by Enterprise/Crosscutting Process. Multi-year formats help to demonstrate cumulative progress towards achievement of strategic goals and objectives. Each annual performance goal also has an associated color assessment to facilitate trend analysis.

The following color key is used to assess performance:

Blue: Significantly exceeded performance
Green: Achieved performance target
Yellow: Did not achieve performance target, progress was significant and achievement is anticipated within next fiscal year
Red: Failed to achieve performance target, do not anticipate completion within the next fiscal year

Each Enterprise or Crosscutting Process section continues to include a budget link table that recaps the relationship of budget account and annual performance goals. To facilitate configuration management, control numbers have been assigned to all performance targets. The numbering sequences may not be contiguous, as targets may have been dropped out as the formulation process progressed.

The Performance Evaluation Process

NASA uses a process of extensive internal and external reviews to evaluate our progress against established plans. Enterprises and functional managers conduct reviews on a periodic basis. There are regular reviews for functional management activities, such as procurement, finance, facilities, personnel, and information resources management. There are also programmatic reviews of science, engineering, and technology plans and performance. The NASA Inspector General conducts independent reviews and provides recommendations for corrective actions.

NASA has established management councils, as described in the NASA Strategic Management Handbook, which conduct internal oversight reviews. Throughout the year, Program Management Councils (PMCs) at Headquarters and the Centers assess program schedules, cost, and technical performance against established programmatic commitments. The Senior Management Council (SMC) brings together both Headquarters and Field Installation Directors to conduct assessment reviews twice a year of the progress being made in meeting the Enterprise and Crosscutting Process performance targets.
NASA's extant management review processes provide appropriate forums for internal reporting and reviewing of project and program performance data. The recent streamlining of agency processes provides confidence that new data collection and oversight processes need not be created for compliance with GPRA. Our mission oriented organizational structure and established management processes are well suited to assessment of this type of performance evaluation.

There are also significant external review processes in place. The external reviews typically begin with the peer review processes in which NASA uses panels of outside scientific experts to ensure that science research proposals are selected strictly on the merits of the planned research. This process takes into account past performance for selection and/or continued funding.
NASA requests assistance from other federal agencies to provide expert advice and council. In some cases, the organizations are advisory bodies of experts from the public and private sectors that work with NASA to establish priorities in particular scientific disciplines. For example, NASA has requested that its senior advisory body, the NASA Advisory Council (NAC), independently review NASA's annual performance. Since FY 1999, the NAC has reviewed reported performance and provided a qualitative assessment of the Agency's progress that is included in the Agency Performance Report. In other cases, reviews are conducted by organizations such as the NASA Advisory Council, the Aerospace Safety Advisory Panel, and the National Academy of Sciences, which share responsibility for oversight of the Agency.

Additionally, the General Accounting Office reviews both the Performance Plan and Performance Report in their annual report "Status of Plans for Achieving Key Outcomes and Addressing Major Management Challenges."

The use of these external reviews allows NASA to receive a report card on whether we are making the anticipated progress towards accomplishing the priorities established by the Administration, the Congress, and our advisory bodies. When necessary, these external assessments result in the revision of either implementation plans or strategic plans.

The GPRA Performance Evaluation and Report Process

For the purposes of the GPRA performance reporting process, NASA uses advisory committees as the critical input when assessing performance. These committees provide inputs on NASA's Strategic Plan, individual Enterprise Strategic Plans, and budgetary priorities. NASA furnishes program performance status information, and in turn, the committees render advice and council. NASA uses this process to generate an independent "scorecard" report on our annual performance.
NASA has historically been one of the most open federal agencies in terms of performance measurements. Public attention is drawn quickly to program successes, and particularly to program failures. Press conferences on scientific results and program technical status are commonplace. The technical measurement of program progress is a management imperative due to the heavy emphasis on development programs, and within the programs, the specific projects. Flight programs such as the International Space Station compile thousands of technical performance metrics, schedule milestones, and cost performance data.

However, the GPRA requires a heavier focus on outcome metrics rather than NASA's ubiquitous input and output metrics. Like other federal agencies engaged in science and technology, NASA has difficulty in quantifying outcomes and, especially, relating current outcomes to current fiscal expenditures. This is appropriate since NASA's development programs are multi-year in character. In some cases, past expenditures began more than a decade ago. For example, the Hubble Space Telescope that entered into development in the mid-1970's. More recently, NASA has focused on programs and projects with much shorter development periods, on the order of 3-5 years. Yet, the science outcomes are dependent on scientists analyzing the information gathered in the years after launch. Therefore, in measuring the incremental annual performance of a multi-year research or development activity, where an outcome is not realized for several years, output metrics are the most appropriate way to measure the progress towards the achievement of strategic goals and objectives.

The stated objectives of programs within NASA's Enterprises are long-term in character. Annual performance evaluations assess whether appropriate progress is being made in obtaining the scientific or technical data that was believed necessary to achieve these objectives at the time they were developed. By obtaining such information, NASA provides the outputs necessary to achieve outcomes such as answering scientific questions or implementing new aerospace technologies. However, in many cases, NASA cannot guarantee that such outcomes will be achieved since other factors outside NASA's direct control (like breakthroughs in scientific understanding or private sector investments in technology) may be required to achieve a given outcome.

It is particularly important in our view to avoid evaluating actual output performance in R&D organizations solely by counting the number of planned events for the year with the number that actually occurred. The "beancount" approach is more appropriate to a

known manufacturing environment. In the high-performance, high-risk R&D environment that characterizes NASA's programs, it is inadvisable to incentivize on-time performance at the expense of safety, budget, quality, high performance and appropriate risk-taking.

NASA has worked hard to maintain the highest emphasis on safety; this value applies not only to safety of personnel but also to preservation of high value facilities, equipment, experimental hardware, and related capabilities. Quality goes hand-in-hand with safety, but extends well beyond it. For example, taking credit for completing a critical design review (CDR) for a spacecraft is only appropriate when the CDR process has been thorough, complete, and meets performance standards. Great care must be taken that quality does not suffer when contract fee incentives call for a milestone payment upon completion of the CDR. Other examples abound, and give rise to our constant vigilance to avoid rushing to launch in order to achieve a given date.

It is possible, of course, to emphasize safety and quality and achieve little of lasting significance or have the achievement take an inordinate amount of time. Building spacecraft that do not test new designs, but rely only on proven designs, is appropriate for operational, mission agencies or commercial entities. It is not the appropriate role for an R&D agency like NASA. Conducting basic and applied research involves experimentation. When exploring new methods and new technologies in these high-performance ventures, it is acceptable to take risks, to push the envelope, and to fail. The tolerance of failure puts NASA and other R&D agencies into a different category than other federal agencies involved in the delivery of services to the public. Note, however, that this does not translate into an acceptance of failures that result from taking an inappropriate level of risk. The level of appropriate risk is tailored to the environment. The distinction is critical, particularly in high-value, high-cost environments, such as human space flight, the maintenance of the Hubble Space Telescope, and the launch of research spacecraft. The risk of failure in those venues is limited by all practicable means.

Thus, output measures are best used in suitable context. For these reasons, NASA management encourages Space Shuttle program managers to set aside metrics dealing with launches planned vs. launches achieved during a given fiscal year. If by waiting, one less launch is achieved than planned, but the result is better safety or quality or enables improved performance or reduces risk, then the latter result is what NASA wants to incentivize.

NASA's Verification and Validation of Performance Data

NASA is committed to ensuring that reported performance information is valid and reliable. Data credibility is a critical element in the Agency's ability to manage for results and to be accountable for the accuracy of performance data. NASA's performance in developing and delivering products and services is evaluated at the Agency, Strategic Enterprise, functional office, program and project, crosscutting process, and individual levels. Each level has responsibility to execute requirements and to measure, evaluate, and report results. Methods and procedures for collecting this information are evaluated and validated by program managers who are responsible for data collection and reporting. As each part of the organization completes its measurement process, data are used to validate that performance meets or exceeds planned goals, objectives and performance targets. In those situations in which performance does not meet expectations, opportunities for continuous improvement are identified.

Communicating our verification and validation approaches provides greater confidence that reported performance information is credible while enhancing the usefulness of the information. In an audit of the FY 2000 Performance Report, GAO stated that NASA's validation and verification reporting efforts provided greater confidence that results were credible. Specific documentation of achievement was provided for each annual performance goal. This effort will continue as demonstrated by individual enterprise/crosscut verification and validation efforts summarized in the Plan and verification/validation/data source information by APG reported in the Report. Data sources that were used included, but were not limited to, databases used for other purposes, third-party reviews, and certification by managers and/or contractors. Changes or improvements to existing data collection and reporting systems or processes were included in the verification methodology. As appropriate, reliance upon external sources was identified in the data sources section of each target's performance. With regards to external data sources, NASA relies on the individuals responsible for the performance to validate and verify the information provided for GPRA compliance.

For the purpose of assessing NASA's overall performance, we will continue to ask our Advisory Committees to evaluate accomplishments at the Enterprise level. Their assessments not only integrate quantitative output measures but also provide balance in the context of safety, quality, high performance, and appropriate risk. The NAC evaluates annual performance for both the Enterprises and the Crosscutting Processes, assessing both actual performance and progress towards strategic goal and objective achievement. In addition, the Office of the Inspector General (OIG) has conducted validation audits of reported performance data used to support the Agency's actual results on selected performance targets to ensure that underlying performance data are accurate and reliable.